June 2009

Energy Services BULLETIN

Western's monthly energy efficiency and renewable energy newsletter dedicated to customer activities and sharing information on energy services.

# New program helps public-owned utilities access Federal funds

The American Recovery and Reinvestment Act (ARRA) represents a tremendous opportunity for utilities to invest in energy-conserving technologies and practices, and the Clean and Efficient Energy Program (CEEP) is gearing up to help public power providers make the most of it.

The American Public Power Association (APPA), Large Public Power Council (LPPC) and Alliance to Save Energy launched this three-year, nationwide initiative in February on the heels of the historic economic recovery package. CEEP will provide utility managers with topical "toolkits" summarizing successful strategies and offering step-by-step guidance in program planning, design, implementation and evaluation. These tools will be tailored to the specific needs and constraints of locally-owned and -operated utilities, said Jan Schori, former Sacramento Municipal Utility District general manager and chair of the CEEP steering committee.

CLEAN and EFFICIENT ENERGY PROGRAM for public power

**The Clean and Efficient Energy Program for public power (CEEP) is a new 3-year, nationwide initiative promoting investment in energy efficiency and clean energy by publicly owned utilities. (Artwork by CEEP)**

## Drawing on experience

Members of the steering committee come from public power organizations across the country and have drawn on their wealth of industry experience to create the toolkits. "There is no need for a utility to start from scratch, even if it doesn't have any energy-efficiency program now," said CEEP Program Director Emily Zimmerman. "Connecting utilities with existing information—case studies, white papers, even individuals—is a core part of CEEP's mission."

Fostering collaboration is another area where Zimmerman sees CEEP playing an important role. "ARRA will have opportunities unique to public power, as well as less obvious avenues of funding," she said.

For example, municipalities are substantial property owners, offering the possibility of injecting energy-efficiency improvements into infrastructure projects, such as housing or sewer systems. "Proposals that bring together several partners or work through joint action agencies have a better chance of getting funded, too," observed Zimmerman.

## Customizable solutions

Collaboration and working with tried-and-true programs are the twin themes of the first CEEP toolkit, debuting in June. The turnkey program models and downloadable templates will be available online. Eventually, CEEP will add a searchable database of case studies and program templates to its Web site.

The interactive site will allow visitors to customize searches for their utilities and upload successful programs of their own. The database is an open-source program with no membership required; however,

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## What's inside

## New program

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users will need to enter some profile information to find specific programs. "Visitors will be able to say, 'this is the kind of program I need,' or, 'this didn't work for my utility because…'" said Zimmerman. "Our hope is that other users will answer back with solutions that worked for them elsewhere."

That conversation, along with input from topic-based user groups, is part of the process of turning one-time stimulus projects into sustainable programs ratepayers will support. "Dialogue and peer-review are how programs evolve, and how we track their success," Zimmerman said. CEEP's mission to promote energy-efficiency programs and practices to public power utilities pre-dates ARRA, she pointed out, and will be relevant long after the stimulus money has been distributed.

**Energy Services Bulletin**

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### Bringing tools together

Funded by the Sea Change Foundation and the Environmental Protection Agency, the steering committee first met last August. Laying the groundwork for CEEP required a profile of energy-efficiency efforts by region—where programs were concentrated, what type of programs already existed and what sort of support was needed.

Initial findings turned up plenty of templates for successful energy-efficiency and conservation programs but little in the way of coordinated sharing. Zimmerman noted that utilities have done themselves a disservice by not recording their efforts more thoroughly. "The public has a perception that 'not a lot is going on in energy efficiency,' but that didn't turn out to be the reality at all."

The most immediate need is for a central resource where utilities can connect with program models, get guidance on implementation and talk with peers about how to improve and customize existing programs, she added.

Working through APPA and the Energy Center of Wisconsin, the committee also began developing case studies on topics that lacked documentation. Measurement is one area the committee found in need of more attention. Metrics provide a baseline in public power for expanding programs, Zimmerman said, and that translates into job growth and economic development.

### Workshops, meetings

The first toolkit is designed to help utilities that are new to energy efficiency build programs that have a future. It offers guidance for determining the scope of an energy-efficiency initiative, as well as suggestions for leveraging successful, existing programs.

CEEP chose the APPA conference to roll out the toolkit because the event brings together members of the target audience in one place. The organization is also working with state and regional resource associations to introduce the tools at member meetings. Regional workshops, initially concentrated in the Southeast, will follow in July with more to be scheduled through December.

The workshops will offer something for utilities at each stage of program development. At the novice level, workshops will show utilities how to make a case for energy efficiency, while the programs workshop will cover selecting the appropriate program model. For utilities that already have programs in place, an advanced workshop will offer guidance on assessing results and identifying remaining opportunities.

And opportunities for public power utilities suddenly seem to be everywhere. Whether it is improving customer service, aiding the community's economic recovery or reducing a business's environmental impact; CEEP is offering utilities tools for seizing the day—and building the future.

**Want to know more?**
**Visit www.wapa.gov/es/pubs/esb/2009/jun/jun091.htm**

# WINDPOWER 2009 highlights opportunities, challenges

The ailing economy did not keep record-breaking crowds from descending on the Windy City May 4-8 to talk about wind power—how to finance it, build it, forecast it and deliver it—and ongoing challenges and uncertainty did little to dampen enthusiasm.

WINDPOWER 2009 attracted more than 23,000 attendees and 1,280 exhibitors to Chicago's McCormick Place Convention Center. Notable advocates like T. Boone Pickens and U.S. Secretary of the Interior Ken Salazar joined utility professionals, developers and vendors, officials from every level of government, educators and the general public in voicing their support for wind generation. And that is just the tip of the iceberg, according to the American Wind Energy Association (AWEA).

## Public, political support

A recent survey by AWEA found that 75 percent of Americans support a national 25-percent renewable energy standard, one in which wind would play a significant role. Just as important, political support for increasing the nation's renewable energy use, and for addressing the issues to accomplish that, has increased too. The extension of the Federal production tax credit to 2012 was a welcomed start.

There are still many barriers—including some familiar ones—to reaching the goal set by the 2008 DOE report, 20 Percent Wind Energy by 2030. Transmission is still needed; project financing has largely dried up, as it has across the economy; and turbine prices, while showing signs of softening, are still high. Speakers agreed that the next two years are likely to see scaled-down installations, only 6,000 to 7,000 MW added each year.

The same experts, however, expect the market to take off after that and add 10,000 a year or more. A national renewable energy standard (RES) and carbon restrictions, whether in the form of a tax or cap-and-trade, will help drive that anticipated boom. Speakers at the conference's utility sessions insisted those scenarios represent opportunities.

## Mainstream power source

The first session looked at IRPs and How Wind fits in the Power Supply Mix. Speakers from Western customers Great River Energy and Los Angeles Department of Water and Power (LADWP) talked about their utilities' approaches to planning.

Minnesota has a state RES of 20 percent by 2025 and an aggressive Conservation Improvement Plan. Great River Energy feeds these requirements into a capacity expansion modeling program, along with other variable circumstances to calculate the cost of its resource options under different scenarios. Factoring in a future carbon tax drives the cost of coal generation up by more than $30 per kWh, said Great River Energy Key Account Manager Mark Rathbun, making wind generation more competitive. "In that scenario, we could no longer consider our existing coal plants a baseload resource," he said.

To meet projected baseload needs, Great River Energy pursues conservation as the first resource and will look at power purchase agreements and opportunities to add more renewables to its current portfolio of 381 MW of wind.

**At at the opening session of WINDPOWER 2009, AWEA CEO Denise Bode presented Paul Hudson (left) and Barry Smitherman of the Public Utilities Commission of Texas with an award for pioneering renewable energy zone policy. (Photo by Joshua Lott, American Wind Energy Association)**

Driven by its own 20-percent-by-2010 goal, the city of Los Angeles is developing the Pine Tree Wind Project. The project will add 120 MW to a portfolio that includes wind purchases, biomass, geothermal, small hydro and solar. It will also help LADWP comply with a new California rule requiring utilities to get more renewable energy from in-state projects.

## Utilities owning wind farms

The Pine Tree Wind Project represents a growing trend highlighted in the session, Utility Business Models for Acquiring Wind Energy. While power purchase agreements with wind developers are still the most common arrangement, more utilities are venturing into ownership of wind farms.

Because the production tax credit (PTC) is not directly available to nonprofit co-ops, few public power utilities are actively considering the option of owning and operating their own wind projects. However, the benefits of local control—stable power prices, economic development, public education—may justify the investment over the long

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# Western employees soak up the sun

*By Jennifer Neville, public affairs specialist*

*[Editor's note: This story originally ran in The Closed Circuit, Western's employee newsletter.]*

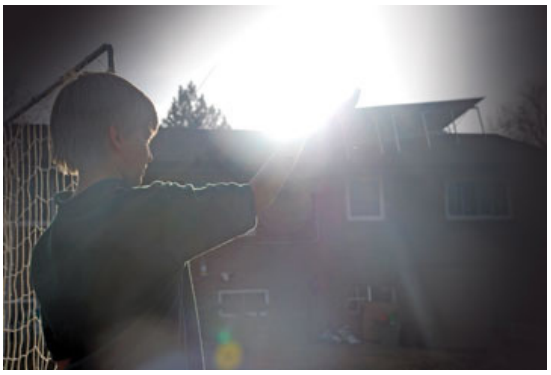
Jim Ashurst of Western's Desert Southwest Region (DSW), in Phoenix, and Debbie Rock of the Golden, Colo.-based Corporate Services Office (CSO) are soaking up the power of the sun to help support their homes' energy demands. Both have installed photovoltaic solar system on their houses within the last six months.

"We decided to look into the cost of solar back in April 2008," said Rock, CSO Energy Services' technical support technician, whose husband Steve Rock is a Western electrical engineer. "Our son Tyler's 3rd grade teacher and one of Steve's friends were very excited to show us their systems. Their enthusiasm wore off on me, and I had to find out all that I could."

For Ashurst, a DSW electronic equipment craftsman, the beginning of his quest for solar power came a few summers ago when he opened his electric bill. "I got a wake-up call in the form of a power bill for $360." He decided to put his idea into action this year after Congress passed the Stimulus Bill, which offered a tax credit of 30 percent of the installation cost. An added benefit is that his utility, Arizona Public Service, pays him $3 per watt of generation capacity, which made the idea of bringing solar power to his home irresistible.

Yet Ashurst's environmental consciousness also played a part. "As a citizen of planet earth, I am very concerned about the impact on the environment. So, on one level, going solar is a vote to turn to cleaner alternative energy.

On a more personal level, it is a way to insulate my family from increasing energy costs." By April 8, his system had generated 961 kWh.



**Tyler Rock stands in his backyard in Colorado, pretending to hold the sun, as the solar panels on top of his roof absorbs the rays.**

## Costly or not?

While the cost of installing a home solar system can take time to recoup, homeowners can see lower energy bills right away, as well as the tax credits and an increase in their home value. "Once it's in, you'll never have to pay more for the power you are generating yourself," explained Ashurst. "Nobody can raise your rates on that part of your energy consumption, and it's a passive system, so the ongoing costs are few."

Another benefit is that maintenance and upkeep are relatively low. "Once in a while, I'll need to go hose the panels down to knock the worst of the dust off," Ashurst said. "You can't think of the expense, you have to think of it as an investment," he continued. "Of course, it will take several years to recoup the cost," he said.

Rock said they are seeing benefits right away. "We are already recouping our money since our utility pays for a portion of the system and we will receive the Federal tax credit and have the tree trimming provided by the solar company. It is predicted that we will recoup the cost of the system in five years, but we can do it in three!"

Rock added that her son thinks it's great that the family produces its own electricity with its 3.06 kW solar PV system. Since they installed the system, Rock noted that "he has been learning about solar and wind in his 4th grade class," she said. "His school has a weather station for weather reports and science class discusses solar energy."

## Plentiful sun

Arizona and Colorado have many sunny days that help power the home solar systems. "Having solar here in Phoenix is a perfect match," said Ashurst. "Air conditioners are one of the biggest drains to the grid, along with clothes dryers." Many Arizona consumers track their energy use since the utility charges more for energy during peak hours. "The local power company installed a net meter so it can keep track of how much power is used, as well as how much power I feed back into the grid," Ashurst explained. "With this system, the energy we are producing on hot summer days will offset the energy we use, so we don't have to manage our energy use as actively."

When asked what she does on Colorado cloudy days, Rock joked, "When was the last time we had a cloudy day?" But both Ashurst and Rock don't worry about cloudy days because they are still connected to the grid. "Our house receives electricity

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term. One solution is the "flip structure," that allows investors to build wind farms and take the equity for a fixed period, then "flip" ownership to the utility. White Creek Wind Farm, winner of this year's Public Power Wind Pioneer award, is an example of this type of deal.

Public-owned utilities might be able to use Clean Renewable Energy Bonds (CREBs) to fund wind farm development. This Federal program, intended to take the place of the PTC for co-ops, fully funds projects, starting with the smallest request and making awards until the budget runs out. While CREBs have been a limited source of funding in the past, the Recovery Act has allocated more dollars to the program. The deadline to apply for new CREBs is Aug. 4, 2009.

Amadou Fall, executive director of the National Renewables Cooperative Organization (NRCO), offered his two-year-old organization as a new resource for co-ops looking to acquire green resources. The 24 utility members of NRCO are working together to package development opportunities, and to aggregate renewable energy request for proposals (RFPs).

## Addressing utility concerns

Utility ownership and working with investors were just two issues attendees discussed at the AWEA Utility Working Group meeting, which took place May 6 during the conference. A record-breaking crowd of utility representatives raised concerns about siting, community opposition, cost recovery, operations and maintenance and, of course, transmission.

The topics closely followed the findings of a study AWEA conducted last year to explore the utility perspective on ramping up wind development. AWEA Utility Programs Manager Jeff Anthony told the group that the report had provided plenty of topics for surveys and for a monthly webinar series, starting this summer.

Michael Milligan of the National Renewable Energy Laboratory (NREL) told the group about two major wind studies now underway. A study of three years worth of wind speed data from the Western United States will analyze the impact on the grid of 20-percent wind penetration. NREL expects to complete the study by 2010. An interconnection-integration study for the East, looking at what happens as greater amounts of wind are aggregated on the system, will be released this coming winter.

## WPA summit

Many who participated in AWEA's utility working group were still in town Friday, May 8, after the conference for the Wind Powering America (WPA) summit.

Following a welcome by DOE Wind Technology Program Manager Megan McCluer, plenary speaker AWEA CEO Denise Bode talked about the state of the industry. After touching again on growing public and political support for renewables, Bode listed AWEA's legislative priorities. With the PTC restructured for the current economy and extended to 2012, AWEA is now focusing on a Federal RES, which, Bode said, would reduce fuel prices as well as carbon emissions. Updating transmission policy, even more than technology, would ultimately benefit consumers too, she added. Bode concluded by urging attendees to call their elected officials, reach out to the public through the media and to get involved with industry groups like Wind Energy Works.

Workforce development and transmission were the main themes running through panels, breakout sessions and table-top discussions. The industry needs qualified workers to build, operate and maintain wind facilities as much as it needs lines to deliver the electricity. Much of the training for wind jobs can take place at the community college level, but many attendees spoke of the need for standardized programs. Colorado Agriculture Commissioner John Stulp observed that there is not enough data on what the industry needs from universities.

The key message from the transmission panel was that planning is easy, but building is the hard part. Creating support and finding consensus among the broad group of stakeholders—utilities, landowners, developers, consumers—may seem time-consuming, but ultimately avoids delays.

As the summit and conference wrapped up, it was clear to attendees that the wind of change is sweeping through the power industry. Fortunately, utilities are quickly learning how to position themselves in front of that wind instead of just getting blown along.

**Want to know more?**
**Visit www.wapa.gov/es/pubs/esb/2009/jun/jun092.htm**

Technology Spotlight:

# Selling voluntary carbon offsets from your energy project

Some energy efficiency and renewable energy projects can be made viable by selling "carbon offsets," also called "carbon credits." A carbon offset is a tradable financial unit – similar to a stock share – representing a certain quantity of greenhouse gas emission reductions from implementing a project. Carbon offsets from projects across the United States have been actively traded on voluntary markets for several years. The voluntary market in carbon offsets can be, but is not necessarily, created by government legislation or policy.

The market is created in two ways. First, buyers with an interest in mitigating climate change can buy carbon offsets on the over-the-counter retail market. Second, most cap-and-trade systems – such as the Chicago Climate Exchange, Regional Greenhouse Gas Initiative (RGGI), and the Western Climate Initiative (WCI, scheduled to begin operation in 2012) – allow participants to meet part of their obligation to limit emissions by purchasing carbon offsets from others.

Many private and non-profit organizations buy offsets from projects and sell them (or broker transactions) to over-the-counter buyers and participants in cap-and-trade systems. Contact information for offset marketers and brokers can be found at the Chicago Climate Exchange under offset aggregators. DOE's Green Power Network also provides a list of greenhouse gas offset marketers.

To have value, your carbon offsets must be certified in accordance with at least one of several rigorous standards accepted in carbon markets. The price depends on the standard you use. The Voluntary Carbon Standard is the most popular and dominant standard in the United States. Others are Green-e Climate, the Chicago Climate Exchange, California Climate Action Registry and CDM Gold Standard. See the New Carbon Finance's Voluntary Carbon Index for market prices and trends.

## Estimating carbon offsets

Carbon offsets are commonly measured in either metric tons ($tCO_2e$) or short tons ($stCO_2e$) of carbon dioxide-equivalent. If your project avoids methane emissions, these methane emission reductions must be converted to the equivalent carbon dioxide emissions. Methane is 23 times more potent as a greenhouse gas than carbon dioxide. Therefore, one metric ton of methane emission reduction is equivalent to 23 metric tons of carbon dioxide-equivalent reduction.

To determine carbon offsets of your project, first estimate the energy from conventional sources – both electricity and fossil fuels – that your proposed project will save and/or the methane emissions it will eliminate. How emissions are calculated for these studies is determined by the standard you choose.

Carbon offsets associated with electricity savings vary from region to region. One source for estimating carbon emissions associated with electricity is data in The Climate Trust's requests for proposals (RFPs).

For fossil-fuel use, emission factors (a.k.a. conversion factors) are used to convert the quantity of fuel used to metric tons of carbon dioxide equivalent. Emission factors for many fossil fuels are available from the U.S. Energy Information Administration.

**The Chicago Climate Exchange trades in Carbon Financial Instruments (CFI), which represent 100 $tCO_2e$. Many voluntary retail markets trade in Verified Emissions Reductions (VERs), which represent 1 $tCO_2e$. RGGI and the U.S. Environmental Protection Agency use short tons $CO_2e$, while the WCI uses metric tons. One metric ton equals 1.102 short tons.**

## Registering, verifying offsets

Trading carbon offsets will require registering your project, quantifying carbon emission reductions and certifying and verifying the reductions by an independent third party–all of which takes time. Typically, the project owner is responsible for performing a feasibility study. Offset retailers, marketers or brokers can often guide you through the process and assist in an initial screening or preliminary analysis to help determine if a more in-depth feasibility study is warranted. The contract details, including the point at which you begin receiving income, are negotiated between you and the buyer of the carbon offsets.

**Want to know more?**
**Visit www.wapa.gov/es/pubs/2009/jun/jun094.htm**

## Web site of the month:

# Stay cool, Save Money

Warm weather is here and high electricity bills are close behind, as Americans use more energy to keep their homes or businesses cool and comfortable. Finding ways to combat these high costs is essential, so the U.S. Department of Energy has launched Stay Cool, Save Money. This educational Web site can help consumers be more energy efficient by giving them simple, cost-effective, energy saving solutions to implement during cooling season.

The Stay Cool strategies are divided into three categories: No-cost and low-cost tips, energy audits and long-term investments. Each page provides links to in-depth explanations so visitors can do their energy-efficiency homework. For those who are ready to take action, there are links to Energy Star products and help locating local service providers.


**Part of DOE's Energy Savers initiative, Stay Cool, Save Money is a seasonal tip site to help consumers tap the most affordable resource—energy efficiency. (Artwork by U.S. Department of Energy)**

### Step-by-step efficiency

On the tips page, visitors will find ideas for keeping their homes comfortable in spring and summer without running up a big utility bill. Some of the measures are free and can be used on a daily basis to increase electricity savings; others are simple and inexpensive actions that can ensure maximum savings through the spring and summer.

The first step in preparing to save energy is to find out where a building is leaking energy—and money. The energy audit page offers resources for homes, multifamily units and small businesses. Homeowners can choose to self-audit or contact a professional. The self-auditing link goes to the DOE Energy Savers page on do-it-yourself audits, with links to online tools for a more comprehensive evaluation. A link to the Certified Rater Directory from the Residential Energy Services Network will help visitors locate professional auditors in their area.

The Multifamily Building Calculator can help property owners figure out what energy-efficiency improvements will give them the most "bang for their bucks." Small business owners will find resources to help them green their business and reduce operating costs.

The long-term investments page lists several, more expensive measures that can yield greater savings for months and years to come. Visitors will be able to research such options as increasing insulation, replacing windows, upgrading heating and cooling systems and more.

### Funding resources

It is always a challenge to find money to pay for building improvements—even ones that will save money in the long run—and Stay Cool has that covered, too. Financial assistance offers resources for consumers, including weatherization information, state low-income home energy assistance programs and rebates for appliances and products. Small business owners can connect with national agencies providing funding for energy-efficiency upgrades, along with state and local resources.

### Help for utilities

All of the consumer-oriented resources on Stay Cool make it a valuable reference for utilities—especially ones with limited budget or staff for energy services.

Power providers can download partnering materials to adapt for their own campaigns. Adding the Stay Cool widget (small program that updates content automatically) to a utility Web site is an easy way to give customers weekly energy-efficiency tips. The fact sheets in the media kit are intended for members of the press, but the Top 10 Tips to Stay Cool, Save Money would make a great summer bill stuffer, too.

And, when winter comes, download the Top 10 Tips to Stay Warm, Save Money. Because energy efficiency is a year-round need, Stay Cool, Save Money will be revised as the seasons change. Whether it's June or December, saving money—and energy—is always cool.

**Want to know more?**
**Visit www.wapa.gov/es/pubs/esb/2009/jun/jun095.htm**

# Soak up the sun

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from two sources, so a cloudy day does not change our plans…we just draw more current from the electrical grid.

She continued, "Besides, in Colorado we have so many sunny days, wouldn't it be great for anyone to produce their own electricity?" Rock asked rhetorically.

## Working with the utility

In Colorado, the local utility has to approve the system and its connections. "Xcel was great to work with," said Rock. "All projects have a story," she added, noting that their system includes solar readings that were done when there were no leaves on the trees. Consequently, the utility predicted they would have quite a massive system with no tree trimming required.

"During installation, the solar contractor delayed the project because of two large trees to the south that now had leaves," she continued. "We received a good tree trimming on these old trees and have lots of firewood for whenever we have another cold winter. The solar people made the adjustments without a fuss."

For Ashurst, the solar company analyzed his energy use last year and gave him two estimates—one for a solar system to cover 100 percent of electrical costs and the other to cover 50 percent of the costs. "We went with the 50-percent—a 4,800-watt system, which we can always expand on later," he said.

**The 21 solar panels soak up the sun on Jim Ashurst's roof in Arizona.**

Since Ashurst's system came online March 10, it has produced about 30 kilowatthours of electricity every day. "One thing that struck home was that the power company set up the disconnect switch with its padlock and two tags," he said. "If they ever need to work in the area with the power out, they will treat that disconnect as part of their switching and lockout/tag out system just as we do when we are working in substations."

## Spreading the idea

Both Ashurst and the Rock family have taken other steps to make their homes more energy efficient, including exchanging all of their standard light bulbs for compact florescent light bulbs. Ashurst is looking at adding a solar-powered water heater and the Rocks have added insulation in their attic. Rock also brought home a device that showed where the house was losing the most heat: "Darn fireplace!" she remarked.

Yet, these Western employees are not alone in the search for solar. "Our friends decided to get a solar system and it was installed just last month," said Rock. "When you drive home from work, you do notice there are others with new solar panels and some with older panels that you did not notice before."

Ashurst added, "I'm sure my neighbors will be asking down the road about what I've done and how much it costs and how much I've saved. I've seen other homes with solar around the city. Heck, even DSW has solar water heater panels on its roof. It's the way of the future, and I'm glad to be helping."

**Want to know more?**
**Visit www.wapa.gov/es/pubs/esb/2009/jun/jun093.htm**